

REMARKS/ARGUMENTS

Claims Status

Claims 18-25 are pending. Claims 1-17 are canceled without prejudice. Claim 18 is currently amended to include (1) Cr which finds support in original claim 3, and (2) a loading density processing (d/L) limitation which finds support in [0062] and [0068]-[0070] of the specification. New claim 19, which narrows the loading density range of claim 18, shares support with claim 18. New claims 20-25 find support in original claims 2-7 respectively. No new matter is believed to have been added.

§103(a) Rejections

The claims have been rejected as follows: (i) claims 1, 3, 5, 6 and 18 are rejected as obvious in view of *Kuroda* (US 6,372,056); (ii) claims 1 and 18 are rejected as obvious in view of *Minami* ("Drawing High-Grade Steel Wire Rods Without Heat Treatment", Wire Journal International, Vol. 16, pp. 236-247, Sept. 1983); (iii) claim 2 is rejected as obvious in view of the combination of *Kuroda* and *Tsukamoto* (US 5,156,692); (iv) claims 8, 10-13 and 15-17 are rejected as obvious in view of the combination of *Kuroda* and *Bae* (US 6,264,759); and (v) claims 9 and 14 are rejected as obvious in view of the combination of *Kuroda*, *Bae* and *Tsukamoto*. Applicants respectfully traverse these rejections.

At the outset, Applicants note that rejections (iii), (iv) and (v) are drawn toward canceled claims. As such, it is believed that these rejections have been rendered moot. Applicants make no statement with respect to the propriety of these grounds of rejection and in no way acquiesce to the same. Solely to expedite examination, Applicants have canceled claims 1-17. As such, Applicants respectfully request withdrawal of the obviousness rejection (iii), (iv) and (v) as recited above.

With respect to rejection (i) and the *Kuroda* reference, Applicants submit that *Kuroda* does not disclose or suggest (a) controlling the loading density (d/L) of the wire rod during

both the first and second cooling processes to be 0.20 or less as claimed, (b) such a low Cr content as claimed, and (c) the claimed two-step cooling, for at least the following reasons.

Kuroda discloses “An Si-Cr spring steel having the chemical composition shown in Table 1 and conforming to JIS SUP12 was rolled into a wire rod (8.0 mm in diameter). The spring steel has segregation such that the ratio of C_{\max}/C_0 is 1.0~1.5. The rolling was carried out in such a way that the temperature after rolling and just before being laid on the conveyor was 800-1050°C. The wire was cooled at a rate of 0.1-10°C./sec. The resulting wire rod was annealed at different temperatures ranging from 600 to 700°C. for different periods of time ranging from 2 to 5 hours ...” (col. 5, lines 37-54).

Applicants note that this description by *Kuroda* of the 8.0 mm diameter wire rods is silent with respect to any control of the loading density, is silent with respect to the need for any control of the loading density, and is silent on the speed control of the conveyor and speed control of rewinding. Accordingly, not only is *Kuroda* silent on loading density directly, but *Kuroda* is also silent on loading density indirectly since speed control of the conveyor and speed control of rewinding are what controls the loading density. As such, Applicants submit that *Kuroda* does not disclose or suggest that which it is silent on, namely the claimed loading density limitation.

However, notwithstanding the above, Applicants remind the Office that *Kuroda* does not disclose or even suggest that the loading density of a wire rod is a desired parameter and/or result effective variable. Furthermore, *Kuroda* does not disclose or suggest 2-step cooling as claimed. Lastly, Applicants remind the Office that *Kuroda* discloses an alloy containing 0.7 wt% of Cr (see Table 1), whereas the claimed invention contains no more than 0.3 mass% of Cr (see claim 18). Such an excess of Cr, as disclosed by *Kuroda*, results in the formation of martensite, thus rendering the structure of the claimed invention unobtainable

(see Steel No. 10 in Table 1 of Applicants' specification that includes 0.35% of Cr in support of this statement).

Accordingly, for at least the above stated reasons, Applicants submit that *Kuroda* does not render obvious the claimed invention.

With respect to rejection (ii) and the *Minami* reference, Applicants submit that *Minami* does not disclose or suggest a hot-rolled wire rod having a loading density (d/L) of 0.20 or less as claimed, for at least the following reasons.

Minami is silent with respect to the loading density of the wire rods disclosed. Accordingly, *Minami* cannot disclose or suggest that which it is silent on. Furthermore, *Minami* does not disclose or suggest the 2-step cooling as claimed (see previous response filed August 17, 2009). Lastly, Applicants remind the Office that *Minami* discloses an alloy containing 0.5 wt% of Cr or 0.70 wt% of Cr (see Table 2), whereas the claimed invention contains no more than 0.3 mass% of Cr (see claim 21). Such an excess of Cr, as disclosed by *Minami*, results in the formation of martensite, thus rendering the structure of the claimed invention unobtainable (see Steel No. 10 in Table 1 of Applicants' specification that includes 0.35% of Cr in support of this statement).

Accordingly, for at least the above stated reasons, Applicants submit that *Minami* does not render obvious the claimed invention.

In light of the foregoing, Applicants request withdrawal of the obviousness rejections over *Kuroda* and *Minami*.

Conclusion

Applicants submit that all now-pending claims are in condition for allowance.

Applicants respectfully request the withdrawal of the rejections and passage of this case to issue.

Respectfully submitted,

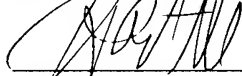
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